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STATED MEETINGS

Of the Entomological Section of The Academy of Natural Sciences of Philadelphia, and of The American Entomological Society will be held at 7.30 o'clock P. M. on the following dates during 1924: January 24, February 28, March 27, April 24, May 22, September 25, October 23, November 20, and Dec. 8.

Communications on observations made in the course of your studies are solicited; also exhibits of any specimens you consider of interest.

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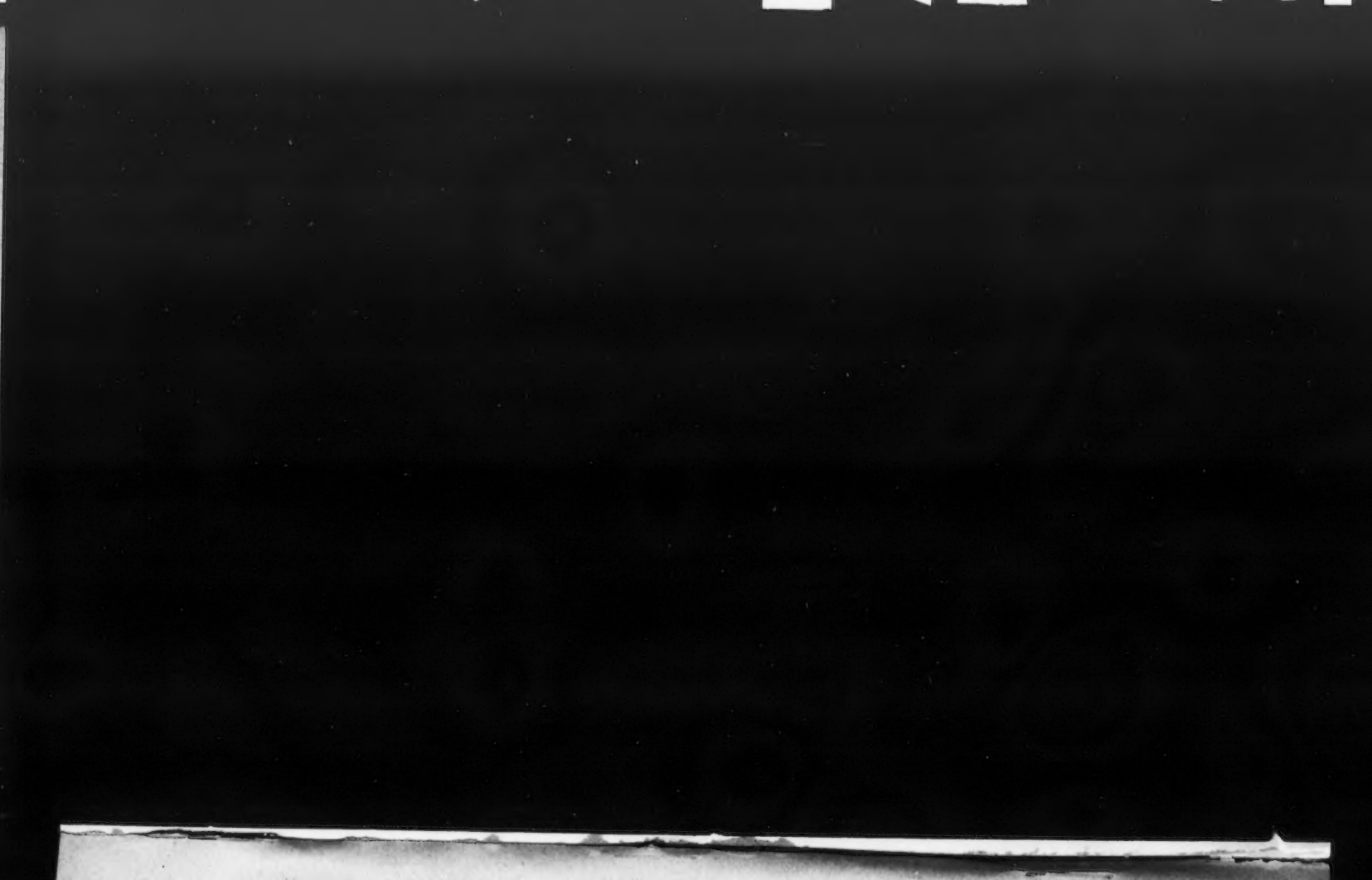

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA

VOL. XXXV MARCH, 1924 No. 3

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An Annotated List of the Ants of Mississippi (Hym.).

By M. R. SMITH, A. and M. College, Mississippi.

(Continued from page 54.)

25.—**P. dentata** Mayr.

Tupelo; Aberdeen; A. and M. College; Sturgis. Next to *vinelandica* this is one of the most common species of *Pheidole* in Mississippi. Unlike the former species, *dentata* seems to prefer building its nests under stones, logs, planks, etc. The soldiers and workers probably feed almost entirely on insects.

P. dentata is considerably larger than *vinelandica* and possesses more rounded thoracic angles. The specimens examined by the writer have two spines on their gular borders, while those of *vinelandica* are bare of spines. The presence, or absence of spines should not be relied upon entirely, however, in the determination of the species of *Pheidole*.

26.—**P. dentata** var. **commutata** Mayr.

Sibley. The writer has not taken this variety in the state but on different occasions has received specimens from Mr.

Andrew Fleming of Sibley. Mr. Fleming found this variety nesting in a post resting on the gallery floor of his house. The workers were noticed carrying a small beetle and a leaf hopper into the nest; they would also carry flies and sugar into the nest when these were placed near the nest's entrance. Mr. Fleming thinks that the ants do most of their foraging at night, for very few ants were seen during the day and these appeared quite timid, almost frantic, if disturbed.

This variety is a much more smooth and shining ant than *dentata*. The posterior portion of the head, the prothorax, gaster and legs are very noticeably shining. The specimens sent to the writer are very dark brown, almost black. Dr. Wheeler states that there is considerable variation in the color of *commutata*.

27.—**P. tysoni** Forel.

Sibley. This is also a soil-nesting species which does not seem to be common in the state.

The soldiers of this species can be distinguished by their distinctly elongated heads, the sides of which are sub-parallel. The gular border contains two prominent spines which can be easily seen in profile.

28.—**P. flavens** Roger subsp. **floridana** Emery.

Ocean Springs. This is a tropical species which has become established in the state.

29.—**P. metallescens** var. **splendidula** Whlr.

Gulfport. This is another soil-nesting species of *Pheidole*. According to Dr. Wheeler nests are built in the sand in more or less grassy places.

The beautiful violaceous, or metallic colored workers of this species at once distinguish it from the other *Pheidole* that occur in Mississippi.

30.—**Solenopsis geminata** Fabr.

"The fire ant" as it is commonly called, because of its fire-like sting, is one of the most common ants in the state. It is often complained of as a house pest, the workers showing a decided fondness for greasy foods. Nests are built in the soil in open, sunny places and the particles of earth thrown out in a more or less loose mass which is characteristic of this species.

When the nest is disturbed the workers rush forth in a very vicious manner and will sting the intruder who dares put his hand or feet near them. The fire ant is a very important predator of the boll weevil because of its habit of entering the squares and feeding on the immature young of the weevil. In literature it is reported as eating into ripening strawberries and other small fruits of this type.

This ant is rather variable in color, the smaller workers being much darker than the larger workers. The head of the larger workers is reddish while the thorax, petiole, abdomen and appendages are darker.

31.—**S. geminata** var. **xyloni** McCook.

This is a color variety of *geminata*. The workers are much darker than those of the species. *Xyloni* has habits similar to *geminata*.

32.—**S. geminata** subsp. **rufa** Jerdon.

Tupelo. This is an imported ant which has been found in only one locality in the state. Nests were found under concrete sidewalks. The workers were noticed crawling here and there on the sidewalk in search of food.

This subspecies may be distinguished from *geminata* by the presence of a tooth on each side of the thorax between the prosternum and the mesosternum, the tooth extending backward and downard.

33.—**S. molesta** Say.

This tiny yellow species is well known in the literature of economic entomology. It is very often a troublesome house pest. It has been reported to attack the germinating seed of small cereals in Kansas. *Molesta* seems to have a very varied food habit, feeding on insects, seeds, human eatables, etc. It occasionally lives in the nest of other ants, stealing the larvae and pupae for food. This is the smallest ant mentioned in this paper.

34.—**Cremastogaster ashmeadi** Mayr.

A. and M. College; West Point. This little species nests in the twigs of trees or in galls. It feeds on the honey dew excreted by plant lice.

A. ashmeadi may be distinguished from the other *Cremastogaster* occurring in this state by its unusually small size and by the short, blunt, incurved spines on the epinotum of the worker.

35.—**C. lineolata** Say.

This common North American ant undoubtedly occurs throughout the state. It nests in the ground under stones, in rotten logs, etc. It is also very fond of honey dew. The workers when disturbed turn up their abdomens in such a manner as to earn for themselves the title of acrobatic ants. *Lineolata* is more closely related to *atkinsoni* than to any of the other ants mentioned here.

36.—**C. laeviuscula** Mayr.

This species is very commonly found crawling up and down the trunks of trees or over logs on the ground. The workers are exceedingly fond of honey dew but no doubt feed on insects, etc. Wheeler states that he has found *laeviuscula* nesting in the galls of the Cynipid, *Holcaspis cinerosus*, on oak in Texas.

Laeviuscula may be recognized by the uniform smoothness of the body; the head, thorax and pedicel are shining and very finely punctate above. The epinotal spines are rather long, acute and diverging.

37.—**C. laeviuscula** var. **clara** Mayr.

The variety *clara* is a larger ant than *laeviuscula*. It has similar food and nesting habits.

It may be distinguished from the other species of the genus by the bright yellowish red color of the head, thorax, pedicel, and appendages of the worker. The abdomen is black, usually with a slight tinge of red at the base. The spines on the epinotum are longer, more curved and acute than those of *laeviuscula*.

38.—**C. atkinsoni** Wheeler.

A. and M. College. This species builds large paper-like nests which resemble very much those of the white-faced hornet, *Vespa maculata*. For a long time this species was confused with *C. lineolata;* recently Wheeler has published an article pointing out the differences between the two species. It is a smaller and more slender ant than the typical *lineolata* and has a smoother, and more shining thorax. The epinotal spines are also straighter and more acute than in the former.

39.—**C. victima** subsp. **missouriensis** Pergande.

A. and M. College; Sibley. Nests are built in the soil, usually in a clay or a clay loam. Small particles of earth are thrown out of the nest's entrance to form a small crater. The ants when unearthed are slow of movement and appear blinded by the light. Nothing is known concerning their food habits.

This species can be recognized by its pale, yellowish color; the gaster is slightly infuscated at the tip. It is the smallest of the species of *Cremastogaster* found in this state.

40.—**Tetramorium guineense** Fabr.

Gulfport; Biloxi; Pascagoula. This is the only species of *Tetramorium* known to be present in the state, although the writer has been expecting to find *caespitum* also. This imported ant is very common in the localities mentioned above, where it may be found crawling up and down trees in search of honey dew. Like *caespitum,* it is a house-infesting ant.

This is a reddish yellow ant with dark colored gaster. It can be easily distinguished from *caespitum* by the distinct rugosity of the head and thorax, the former species having this portion of the body striated.

41.—**Dolichoderus (Hypoclinea) mariae** Forel.

A. and M. College; Columbus. This beautiful red and black species constructs its nest in the soil at the base of broom straw grass, *Andropogon* sp., or more occasionally about the roots of small bushes. The colonies are very large, consisting of thousands of individuals. Not only are the ants fond of honey dew but they also like insect food. The workers have a habit of crawling up and down tree trunks in files.

The workers are easily distinguished from the other species of *Dolichoderus* by their color, size, and smooth, shining surface of the body.

42.—**D. (Hypoclinea) taschenbergi** Mayr.

Rara-Avis; A. and M. College. The shining, black workers of this species are easily recognized. Nests are built in situations similar to those of *mariae,* the habits of the two species being about the same. A large nest found at A. and M. College on

May 5, 1922, contained thousands of workers, and numerous males and immature forms.

This species is about the same size as *mariae* but is easily distinguished from that species by its black color. It is also smooth and shining.

43.—**D. (Hypoclinea) plagiatus** subsp. **pustulatus** Mayr.

Okolona. This species has habits similar to those mentioned above, the colonies, however, are not so large, consisting only of a few hundred individuals.

The workers are smaller than those of *mariae* or *taschenbergi*. The head is almost black, the thorax reddish brown and the base of the gaster is spotted with yellow.

44.—**Dorymyrmex pyramicus** Roger.

Macon, Columbus, Aberdeen, Laurel, Sibley. The "lion ant," as it is commonly called, builds its crater-shaped nests in sunny spots. The workers are very fond of honey dew, but also feed on small insects. Sexed forms have been found in the nests as early as April and the writer is led to conclude from this that the queens take their nuptial flights early in the spring. The workers when crushed have the peculiar rotten cocoanut-like odor, which is so common to many of the species of Dolichoderinid ants. This species and its varieties are often found nesting together.

This ant can be distinguished by its slender form, its dark color, and by the conical shaped epinotum of the worker.

45.—**D. pyramicus** var. **niger** Pergande.

Macon; Sibley; McHenry. This is a very dark form of *pyramicus* with similar nesting, and other habits. It seems to be more common to the lower part of the state.

46.—**D. pyramicus** var. **flavus** Pergande.

Tupelo; Gulfport; A. and M. College; Newton. This is a distinct yellow variety of the species, which also has similar nesting habits. *Flavus* is a more common variety than *niger* in this state.

47.—**Tapinoma sessile** Say.

Artesia; Clarksdale. This species nests in logs, also in the

soil under planks, stones, etc. The workers when crushed have the peculiar odor so characteristic of this, and related species. *T. sessile* does not seem to be a common ant in Mississippi, at least the writer has not found it so. The workers bear some resemblance to the Argentine ant and might be taken for that species by the ordinary layman, but the presence of the distinct odor in *sessile* is evidence enough to distinguish the two.

This ant varies considerably in size and color but is usually a very dark brown with a pruinose tinge. The petiole is vestigial, another characteristic which readily separates it from the Argentine ant.

48.—**Iridomyrmex pruinosus** Roger.

Pascagoula. Several workers of this species were taken at the above named locality.

49.—**I. pruinosus** var. **analis** Andre.

This is probably the most common ant found in the state. Nests are constructed in the soil and the earth very often piled up at the entrance to form a small crater. The workers are exceedingly fond of sweets and, not only attend plant lice, scale insects, etc., but often wander into houses in search of food. This is the nearest relative of the Argentine ant and is often confused with it. The presence of a distinct odor readily separates it from the Argentine ant. It may be told also from this species by the pale, yellowish white color of the abdomen, that of the Argentine ant being a uniform dark brown.

50.—**I. pruinosus** var. **humilis** Mayr.

This imported species, commonly known as the Argentine ant, is by far the worst house-infesting ant that we have in the state. At present, about seventy towns in Mississippi are known to be infested with it and there are, no doubt, many others of which we have no record. The workers have a habit of getting into every conceivable place, especially where food is stored. They have been known to crawl over a chunk of ice in a refrigerator in order to reach meat. They also drive setting hens from the nest, thus making chicken raising in some towns practically impossible. The greatest damage from the Argentine ant is

caused, no doubt, through its pernicious habit of spreading scale insects, plant lice, mealy bugs, etc. Last year the state spent about $25,000 in fighting this pest. Campaigns of control were conducted in seventeen of the infested towns. Once these ants become established in a town they drive, or kill out all of the native ants, with the exception of a few small species with which they live amicably. The spread of this species is, for the greater part, accomplished by man through the channels of commerce. The Plant Board has, on numerous occasions, intercepted these ants in nursery shipments from infested to non-infested places.

This ant can be distinguished from its nearest relatives by the absence of an odor, by the rather slender appearance, the uniform brownish color, and by the absence of a sting.

51.—**Eciton (Acmatus) schmitti** Emery.

A. and M. College; Natchez; Starkville, Toomsuba. This is perhaps the commonest *Eciton* in the state. The workers have vestigial eyes and are more or less blind, probably depending on their sense of smell for guidance. The ants are seldom seen on the surface of the ground. They are fond of fleshy foods and, as far as the writer is aware, are never seen in attendance on any honey dew-excreting forms of insects. A female of this species was plowed up by a correspondent at Toomsuba.

E. schmitti can be distinguished from its nearest relatives by the opaque, reddish brown head, thorax, petiole and postpetiole, which are also punctate and foveolate.

52.—**E. (Acmatus) opacithorax** Emery.

Sibley. This species has been taken but once in the state, altho it will probably be found later to occur throughout the state. The ants seem to show a fondness for nesting in wood, the writer having taken them from beneath the bark of a pine log in North Carolina. Mr. Fleming has also found them nesting in the base of a stump at Sibley. The food habits of *schmitti* and *opacithorax* are the same.

Opacithorax, as its name indicates, can easily be distinguished from the other *Ecitons* by its opaque thorax. The head, abdomen and appendages are smooth and shining. This is a light, yellowish red species.

53.—**E. (Acmatus) pilosus** F. Smith.

Sibley; Hazlehurst. This does not seem to be a very common species in Mississippi. Mr. Fleming, who took specimens at Sibley, wrote the writer as follows concerning them: "I saw several colonies moving the same day. The colonies are evidently very large, one moving along a path leading to my yard formed a solid colmun, ⅜ to ½ inch broad and about 150 feet long: it then separated into two lines going a little to the right and left of the original column. I could see the two branches for about 25 feet. I do not know how long they were in going, but in places they left a distinct trail where they had passed along. I did not see where they came from or where they went." Mr. Fleming also sent the writer a species of ant, which some of the workers of *pilosus* were carrying in their mouths; the ant, on determination, proved to be *Cremastogaster ashmeadi*. Wheeler mentions that the *Ecitons* are fond of the larvae and pupae of other ants and will forage their nests. This may explain what was taking place when Mr. Fleming observed them. In January, 1915, a correspondent at Hazlehurst sent in a number of specimens of *pilosus* which he claimed were getting into his well and decomposing, thus causing the water to have a foul odor.

(To be continued.)

Some Apparently New Heteroptera from Florida.

By W. S. BLATCHLEY, Indianapolis, Indiana.

During the past two years the writer has had in preparation a work on the Heteroptera of the Eastern United States. While thus engaged a number of apparently undescribed forms have been found among the Florida material in his private collection. As it will be two years or more before the main work is ready for the press, it is thought best to publish the descriptions of five of these at the present time. The types of all are in the private collection of the writer.

Geotomus cavicollis sp. nov.

Broadly oval, subdepressed. Head, pronotum, scutellum and under surface black, shining; hind margin of pronotum and corium piceous; membrane dull whitish- to fuscous-hyaline;

antennae, beak, tibiae and tarsi reddish-brown; femora piceous.

Head slightly wider across the eyes than long, its front margin broadly rounded, thickened and reflexed, but without bristles or teeth within the margin; cheeks vaguely, transversely rugose, sparsely, irregularly, rather finely punctate. Antennae with joints 2 and 3 subequal in length, the former more slender and almost nude, 5 slightly longer than 4, 3—5 thickly pilose with stiff suberect hairs. Beak reaching middle coxae.

Pronotum wider than long, its front margin broadly concave, bordered within by a regular row of rather coarse punctures; side margins feebly sinuate; disk with a large, broad, rather deep, impunctate concavity on middle of apical half, on each side of this sparsely and coarsely punctate, the punctures extending along the sides behind the concavity to basal third. Submargins of head and pronotum with a few scattered erect bristly hairs. Scutellum with a submarginal row of fine punctures and a few coarser scattered ones on apical half. Corium with four irregular rows of punctures, the inner row nearly entire, the others abbreviated; clavus with a single row of punctures.

Genital plate of male deeply concave above, its apex broadly rounded. Length 5-6 mm.

Arch Creek and Dunedin, Florida, March 1-21. Taken by sifting dead leaves and beneath cover along the margins of wet hammocks. Not being able to determine from literature the first examples taken, they were submitted to both E. P. Van Duzee and H. G. Barber. The former called it *Pangaeus* sp. ?, the latter at first thought it was *Aethus indentatus* Uhler with the submarginal bristles of front of head abraded. However, the finding of additional specimens without bristles on head proved that it is not an *Aethus*. Mr. Barber later compared it with all specimens in the Uhler and National Museum Collections, finding it very distinct from *A. indentatus* Uhl. He found no named specimens like it; but among the unidentified material there was a single specimen from Paradise Key, Fla., and another from Alabama, and he has one in his own collection from North Carolina. This species forms a sort of connecting link between the genera *Pangaeus* and *Geotomus*. In size and general facies it more closely resembles the former but the preapical impressed line of pronotum, which is the primary

distinguishing character of *Pangaeus,* is represented only by a row of coarse punctures. It is much larger than our other known species of *Geotomus* and the sculpture of the upper surface is very different from them, but in all generic keys of literature it runs to *Geotomus,* and is therefore described as a member of that genus. *Type* a male taken at Dunedin, Florida, March 4, 1921.

Podops peninsularis sp. nov.

Oblong-oval, small for the genus. Above dull grayish-brown, tinged with fuscous; head and front portion of pronotum thinly clothed with prostrate yellow pubescence; punctures of pronotum and scutellum each enclosing a minute yellow scale; first four joints of antennae reddish-brown tinged with fuscous, last joint piceous, pubescent; under surface uniform piceous, the punctures each with a yellow prostrate scale-like hair; legs fuscous or piceous, annulate with dull yellow.

Head as in *dubius,* the cheeks just equalling or scarcely exceeding the tylus, the convex portion of latter shorter. Joints 2-4 of antennae subequal, fifth fusiform, longer and stouter. Beak as described in *bb* of accompanying key, scarcely reaching middle coxae.

Pronotum with median transverse groove less distinct than in *dubius,* the disk behind it strongly convex, rather coarsely and thickly punctate, the tooth or projection of front angles much smaller than in *dubius,* not exceeding the eye, subtriangular, its tip subacute; sinus in front of humeral projection less deep. Scutellum much as in *dubius,* the posterior impression scarcely evident.

Abdomen much more thickly and finely punctate. Male genital segment semicircular, with a deep curved median impression, the basal portion thickly coarsely punctate, the apical one broadly and deeply concave with slightly projecting apical angles. For other characters see the key. Length 5-5.5 mm.; width, 3.2-3.5 mm.

Described from two males and four females taken at Dunedin, Florida, December 24—March 4, from beneath boards and among grass roots on the margins of ponds. Our smallest species, resembling a miniature *dubius* but very distinct by the characters given in the key and description. *Type* a male taken at Dunedin, Fla., February 21, 1921.

Four species of *Podops* are now known from the Eastern

United States. These may be readily separated by the following

Key to Species of Podops.

a. Tooth or projection near humeral angle of pronotum very prominent subcylindrical, surpassing the humerus by a distance equal to length of eye, its apex and front edge curved; margin of pronotum in front of humeral tooth deeply sinuate or concave.

b. Lobe or tooth at front angle of pronotum very large, surpassing the eye by one-third or more of its length, its apex obtuse; beak reaching or slightly surpassing the hind coxae, it second and third joints subequal, each one-half longer than fourth; femora wholly piceous-black; length 7-9 mm. *dubius* (P. B.)

bb. Tooth at front angle of pronotum much smaller, not surpassing eye, its apex subacute; beak scarcely reaching middle coxae, its second joint nearly as long as third and fourth united; femora annulated with paler; much smaller, not over 5.5 mm. *peninsularis* sp. nov.

aa. Tooth near humeral angle of pronotum much less prominent, but slightly surpassing the humerus, subtriangular, its apex obtuse or subacute; margin of pronotum in front of tooth feebly sinuate or straight.

c. Larger, 6-6.5 mm.; middle of abdomen sparsely, irregularly punctate; margin of pronotum between apical and humeral projections, distinctly not deeply sinuate; outer apical angles of male genital plate produced and visible from above beyond the apex of scutellum. *cinctipes* (Say.)

cc. Smaller, not over 5.5 mm.; abdomen deeply and uniformly punctate throughout; margin of pronotum between the projections straight; outer apical angles of male genital plate short, obtuse, not visible from above. *parvulus* Van D.

Mezira novella sp. nov.

Elongate-oblong. Dark reddish-brown, under surface and dorsum of connexivum paler; membrane fuscous with a vague pale spot at base.

Head as long as wide across the eyes; tylus almost reaching apex of first antennal; antenniferous spines small, triangular, acute; vertex coarsely unevenly granulated, the impressions very small; postocular tubercles distinct, obtuse; antennae stout, distinctly shorter than head and pronotum united, joints 2 and 4 subequal in length, 3 two-thirds longer than either.

Pronotum subtrapezoidal, sides distinctly not deeply sinuate near middle, margins finely reflexed, median transverse impression evident, ill-defined, disk with front portion bearing four oval or lozenge-shaped low but distinct tubercles, hind portion finely and densely granulated. Scutellum triangular, much narrower than in *granulata,* the apex more acute; disk with a transverse smooth elevation at base, this divided at middle by a distinct longitudinal median ridge which extends to apex.

Abdomen narrow, the sides parallel. Ventral segments with the usual ridge lying just within the spiracles very faint. Genital segment of male subtriangular, obtuse behind, carinate and subimpressed each side above, lobes narrow, very small. Length 4.5-4.8 mm.

Cape Sable, Florida, February 25-28; a dozen or more specimens beneath bark of decaying limbs in dense hammocks. Smaller and paler than *granulata,* with sculpture of scutellum very different. Pronotum with side margins narrower, much less deeply sinuate, their apical lobe less pronounced; front portion of disk with tubercles more distinct, hind portion much more finely and densely granulated. *Type,* a male from Cape Sable, Florida, February 25, 1919.

Ptochiomera (Carpilis) barberi sp. nov.

Oblong-oval. Head, pronotum, base of scutellum and under surface dark reddish-brown; elytra, nodulose hind angles of pronotum and apical half of scutellum in part, pale brownish-yellow, their punctures but slightly darker; antennae reddish-brown, the base of second joint paler; legs and beak pale yellow.

Antennae relatively stout, as long as head and pronotum united; first joint stout, subcylindrical, exceeding tip of tylus by half its length; second subclavate, twice the length of fourth three times that of third; the third joint and apical half of second as stout as fourth.

Brachypterous form with pronotum subcylindrical, front lobe scarcely wider and three times as long as hind one, minutely punctate, its sides straight, very feebly converging from base to apex; hind lobe with hind angles strongly nodulose, rather

coarsely rugosely punctate. Scutellum sparsely punctate, the preapical median carina very fine. Elytra obovate, the corium and clavus scarcely differentiated; membrane absent; corium reaching fifth dorsal, its hind margin obliquely truncate.

Front femora strongly swollen, armed beneath with two rows of fine subequal teeth; front tibiae of males strongly curved, armed beneath at apical fifth with an acute tooth. Length 2.8-3 mm.

Dunedin and Cape Sable, Florida, January 26-February 23. Described from two brachypterous males taken from beneath boards on the bay beaches. *Type,* a male from Dunedin, Florida, January 26, 1921. Named in honor of H. G. Barber, of Roselle, New Jersey, our leading American authority on the Lygaeidae. The cotype is in his collection. The form of pronotum and antennal segments and the dark hue of hind lobe of pronotum easily distinguish this from *ferruginea* Stål. These two species represent in the United States the genus *Carpilis* of Stål, erected in 1874, with *ferruginea* as the type. They differ from our other *Ptochiomera* in having the antennae shorter with the last three joints furnished with stiff erect hairs, in the toothed front tibiae of males and in the front lobe of pronotum being more than twice the length of hind one. These characters are, in my opinion, of sufficient value to retain *Carpilis,* at least as a subgenus, instead of making it an absolute synonym of *Ptochiomera,* as has been done by Barber.

Cnemodus hirtipes sp. nov.

Smaller and more slender than typical *mavortius*. Color the same, except that the femora are tinged with fuscous. Hind lobe of pronotum with the sides more thickened and the disk more finely and sparsely punctate. Femora and tibiae furnished with numerous long, erect yellowish hairs. Length, 7-8 mm.

Ormond, Moore Haven, Sarasota and Dunedin, Florida, December 6-April 6. Scarce about Dunedin beneath pine needles and other cover. The macropterous form at porch light. In *mavortius* the tibiae are glabrous and the femora have only a very few widely scattered erect hairs. *Type,* a male from Moore Haven, Florida, March 20, 1922.

Lepidoptera Geometridae: Notes and Descriptions.

By W. S. WRIGHT, San Diego, California.

Stamnodes coenonymphata Hulst.

Of all the species of *Stamnodes* known to me, *coenonymphata* Hulst is perhaps the most puzzling. A small series identified by the late John A. Grossbeck has stood under this name in my collection for a number of years. Three of the series are from the San Francisco Bay region, the rest from San Diego. Before me at the time of this writing is a small series of San Diego specimens from the collection of my friend, George H. Field. The examples in this series were identified by Mr. Louis Swett and the late Mr. Grossbeck. Specimens in the Pearsall and Grossbeck collections now deposited with the American Museum, New York City, were mostly from Mr. Field's and my collections. Practically all these specimens are more or less worn and might easily agree with Hulst's diagnosis, since it lacks certain details which, in the light of recent collections made in San Diego, seem to be necessary to exactly describe the species. Unfortunately I do not have before me either the type or specimens from the type locality. A single specimen from Los Angeles falls into my Group D.

During the winter and spring of 1921-22 I collected about 150 specimens at San Diego. None but perfect specimens were taken. These, together with the small series before referred to, comprise a series of 170 examples. Viewed from above the entire group seems to be quite typical of *coenonymphata* as identified by Swett and by Grossbeck. The three San Francisco specimens differ quite markedly in the form of the wings, the costal edge being much less curved and the apex more produced than in the case with San Diego examples. This small group may require another name. The San Diego specimens easily fall into four groups with variants in each group. While the lines defining the several groups are quite distinct they do not, to my mind, provide sufficient evidence for the erection of new species, but they do, in the light of present day practices among students, justify form or race names.

Stamnodes coenonymphata coenonymphata (Hulst).

Group A. This group containing 61 specimens agrees most nearly with Hulst's description of *coenonymphata*. There are, however, some differences. Beyond the third costal spot and near the apex a faint line appears crossing the "dark apex, in triangular shape" parallel with outer margin. This line is a reflection of a sharp division of the apical area beneath, the outer portion being of the same general color as the inner portion but less intense, the difference being due to the presence of some scattered white scales and small masses of red scales in the marginal space. The so-called "broad light colored cross lines, nearly white" on the secondaries fail to appear as described. In the typical specimens of this group the line is narrow, often reduced to a mere hair line. The basal area is nearly black. The narrow white line starts from just beyond the small white discal dot, rounds the cell and reaches the middle of the inner margin perpendicularly. Beyond the white line is a broad blackish band with a few scattered white scales and small masses of red scales. In the marginal space the black of the mesial band gives way to red, while the costal edge from base to mesial dark band is often broadly red with small scattered masses of black scales and, in some specimens, a diffuse mass of white near the outer end of the cell.

This group, although apparently differing rather widely from the description, seems to me to be nearest the type and for it I propose the name *coenonymphata coenonymphata* (Hulst).

Stamnodes coenonymhata prunata forma nova.

Group B. has a much different appearance both above and below. Above, the costal spots are larger and more contrasting, the subterminal faint line mentioned in Group A is more conspicuous and the veins in the terminal space are more or less distinctly outlined in yellow. In nearly every specimen of this group the central portion of the "subquadrate darker space" of the primaries is yellowish, especially on the costa where the yellow often occupies fully one-third of the costal space between the second and third costal spots.

Beneath, the maculation is quite remarkable. The costa of primaries is marked by four yellow spots. From the fourth spot a broad line crosses the wing as in typical *coenonymphata*, the apex is of a brilliant white faintly tinged with blue. The basal third of the secondaries is white, with a thick scattering of fuscous-black strigae. Just before the characteristic broad white line at the middle is a clear fuscous-black patch irregular in outline and approximating the inner margin. In the space

beyond the white line is a broad fuscous-black band occupying about half the space between white line and termen and crossing the wing completely from costal to inner edge, while the broad marginal band is a clear brilliant white with a few scattered dark strigae; fringe concolorous.

For this Group, containing 55 specimens, I propose the name *coenonymphata prunata* forma nova.

Stamnodes coenonymphata pallidata forma nova.

Group C. contains 46 examples and is more nearly typical above, according to the description, than are the members of either Group A or B; however, beneath it is much lighter in color, with a tendency for the first and second costal marks to become obsolete. The bluish white apical patch of primaries is less brilliant, tending to become more or less obsolete, while the bands of the secondaries tend to become diffuse, losing the fuscous and black scales and tending to numerous strigae and masses of bright red scales.

On account of its much lighter appearance I propose for this group the name *coenonymphata pallidata* forma nova.

Stamnodes coenonymphata brunneata forma nova.

The fourth group, Group D, is composed of twelve specimens, much smaller than those of the other three groups, 22 to 25 mm. This group resembles the members of Group C on the upper surface. Beneath, however, there is a wide difference. Only the third costal mark is apparent in most of the specimens, the first and second are either absent or reduced to mere specks. The costal edge and apex are bright red, the rest of the wing is smoky fuscous. The secondaries are a clear red with black strigae in the basal area, while in the area beyond the cell only scattered black atoms appear in the red field. In a few specimens the outer edge of the basal area is marked by a thickening of the black strigae sufficiently to form a definite line across the wing.

For this group I propose the name *coenonymphata brunneata* forma nova.

Stamnodes coenonymphata eldridgensis (Swett).

Another small group of six specimens appears to answer to the description of *eldrigensis* Swett.

Some time ago I sent a specimen of what I now propose to call form *prunata* to Mr. Swett, with an MS. giving it specific

standing, for his criticism. He then pointed out to me that it was in all probability his *eldridgensis,* but recently described from a single male taken at Eldridge, California. A careful comparison of Swett's diagnosis with that of Hulst fails to show differences of sufficient clearness to warrant the retention of Swett's species and, in the face of his admissions (in lit.), I feel sure that *eldridgensis* must either fall to *coenonymphata* or become one of its forms, in which case it would be known as *coenonymphata eldridgensis* (Swett).

The recorded captures in all these groups are from the latter part of November to early in March except in Group C which, with but four exceptions was taken in January, two were captured in the last of December and two during the first week of February. All specimens were taken at light, only perfect specimens being taken.

The types and paratypes here listed are all in the author's collection.

Cosymbia piazzaria n. sp.

Alar expanse 22-25 mm. Palpi pale, tinged outwardly at tip and on second member with fulvous. Front fulvous, a little lighter just above the clypeus. Antennal pectinations fulvous on the upper side. Thorax and abdomen concolorous with the upper surface of the wings.

Primaries:—The ground color above is ochreous with bright fulvous strigations rather evenly distributed over the entire surface of the wings. About one-fourth out from the base is a black line curving outwardly across the wing in a series of dots on the veins. At one-fourth in from the apex a similar line crosses the wing parallel with the outer margin. In the cell a white dot, broadly linear, surrounded by a wide ring of black. Just beyond the discal dot is a broad, smoky, sinuate line or band crossing the wing from costa to inner margin. A terminal line of black dots, while in the base of the fringe and alternate with the black dots is a series of fuscous dots. Fringe short, concolorous and lustrous.

Beneath; the same color as above but with fewer fulvous strigations. Discal dot visible, outer and terminal lines repeated but rather fulvous than black.

Secondaries concolorous; lines and bands of the primaries continued across the wings. Beneath; as in the primaries.

The female is colored and marked as in the male with the

exception that the black median band is likely to be more or less fulvous on the disk.

Holotype, male, San Diego, California, Aug. 21, 1919. *Allotype,* female, Echo Mt., Calif., July 24, 1921. *Paratypes;* (a) male, San Diego, Calif., Febr. 15, 1916. (b) male, Echo Mt., Calif., July 23, 1921; (c) female, Echo Mt., Calif., July 24, 1921. (d) female, Yavapai County, Arizona, Sept. 13.

I have before me 9 specimens of this very interesting species. Three are so badly damaged as to make it unwise to make them paratypes. One of the three, taken at Prescott, Arizona, is much lighter in color and marked much as in *myrtaria,* the others present all the essential characters of *piazzaria* but are otherwise torn and broken. Paratype (a) is quite remarkable in that the colors are much stronger and more contrasting than in the holotype. The species has much the same general appearance as to color as *myrtaria* while the maculation resembles that of *lumenaria;* I should say that its taxonomic position is between the two.

I dedicate the species to my friend Mr. E. Piazza, of San Diego, through whose kindness I obtained all but one of the specimens.

Venusia foxi n. sp.

Expanse 28 mm. Palpi rough scaled, brown. End joint minute and lighter colored. Antennae of the female filiform, scaled above, annulate, ciliate beneath. Front brown and white scales mixed, rounded but not bulging. Vertex and collar concolorous with the front.

Thorax brown; patagiae white with a slight mixture of brown.

Abdomen cinereous with brown and white cross lines at the joints.

Legs brown cinereous; tarsi annulate with white.

Primaries with brownish white ground color, darkest along outer margin. A basal half-line, faint on costa but well marked on median vein where it stops. About 2 mm. out is a broad black line accented on the veins, widest on costa and narrowing gradually to inner margin where it terminates about 1.5 mm. out. Between this line and the middle of the wing are three rather indistinct or diffuse black lines accented on the veins, especially on sub-median and on 1a. At the middle, or a little less than half-way out, is a broad black line, appearing as a

black spot from costa to subcosta, a short < mark at beginning of vein 2 and a black streak on 1a. A small black discal dot followed by a sinuate hair line traceable clear across the wing. An extra discal line commences in a squarish spot on costa and parallels the preceding hair line in a series of black dots on the veins. Three more black lines cross the wing in the submarginal space. A submarginal, scalloped, white line crosses the wing from a point about 1 mm. in from apex to anal angle. The nervures through the marginal space are streaked with dark brown or blackish. At the ends of the nervures is a series of twinned black spots. Fringe sordid, checkered with brownish.

Secondaries concolorous, darker at margins. Discal dot black. Veins beyond the cell accented with brown. Marginal line as in primaries.

Beneath cinereous; smoky along costa and outward; discal dots apparent; extra-discal line on primaries traceable beyond the cell in both wings. Nervures accented with brown.

Holotype female; Mendocino County, California, Aug. 23, 1915 (Fox).

The type agrees best with *Epperrata dilutata* Hübner as described in Packard's Monograph; it is, however, much smaller and quite distinct. I am pleased to dedicate the species to Mr. C. L. Fox, of San Francisco, through whose kindness the specimen came to me.

The American Species of the Drosophilid genus Stegana (Diptera).

By J. R. Malloch, U. S. Bureau of Biological Survey, Washington, D. C.

In this paper are presented in synoptic form brief descriptions of the species of the genus *Stegana* Meigen which are known to occur in the New World with the exception of one described by Williston from St. Vincent.

The material was, with the exception of one specimen, collected by Pablo Schild in San Mateo, Costa Rica; the single exception being a paratype of *uniformis* taken in the Canal Zone, Panama, by R. C. Shannon. The types are all in the United States National Museum collection.

Fuller descriptions will appear later in the Proceedings of the National Museum.

Key to Species.

1. Thorax and abdomen brownish black, only the humeri and apex of scutellum yellowish; all femora and mid and hind tibiae except their apices pitchy black; palpi, frons and knobs of halteres brownish black; apical scutellar bristles about three-fourths as long as basal pair; pleura not conspicuously vittate with black
nigrita sp. n.

— Thorax more largely yellowish, at least the lower half of pleura pale, usually with a well differentiated black vitta on upper half 2

2. Fore tarsi compressed, three or four segments deep black, fifth or basal and fifth pale yellow 3

— Fore tarsi not or very slightly compressed, with at most the basal two segments dark 4

3. Palpi partly black; basal segment of fore tarsi pale yellow; pleura with a deep black vitta on upper part
tarsalis Williston

— Palpi yellow; basal segment of fore tarsi black, only the fifth pale yellow; pleura with two blackish vittae; eye fully as high as long; scutellum with the apical pair of bristles not half as long as basal pair; third antennal segment mostly black, pale only at extreme base
atrimana sp. n.

4. Palpi largely or entirely black 5

— Palpi entirely yellow 8

5. Height of cheek posteriorly at least as great as width of third antennal segment; antennae hardly extending to mouth margin, generally entirely pale yellow; thorax normally with three narrow complete black vittae, two incomplete paler vittae laterad of these, and the lateral margins blackish; pleural vittae entire; all tibiae yellow; face usually yellow, with an elongate mark in each antennal fovea; eyes much higher than long; scutellum with the apical pair of bristles about two-thirds as long as the basal pair; labrum yellow ..... *curvipennis* Fallen

— Cheek linear, at no point half as high as width of third antennal segment; antennae extending to or below mouth margin 6

6. The black vitta on upper part of pleura not entire, not extending to anterior margin of propleura; thoracic dorsum yellow, with two broad entire submedian fuscous vittae, and the lateral margins fuscous from slightly in front of bases of wings to hind margin, the mesonotum thus having a broad yellow mark from propleura run-

ning obliquely over humeral angle to near middle of disc; frons with a very large black mark on ocellar region and another on anterior margin connected by a black median line; femora except apices, and tibiae in middle black; face not carinate above; vibrissal angle and sides of labrum conspicuously blackened; a vitta over upper part of sternopleura; fore tarsi yellow *interrupta* sp. n.

— The black vitta on upper part of pleura complete, extending broadly over propleura; mesonotum not vittate as above, no oblique pale humeral stripe.....7

7. Fore tarsi entirely yellow; mesonotum with two rather distinct narrow dark vittae along each lateral margin; fore femur with a brown band at base and a brown spot at apex on anterior side; face with a rounded convex elevation in center above middle, and two black transverse bands, one close to lower margin and the other over the convexity; frons marked as in *interrupta* *tempifera* sp. n.

— Basal segment of fore tarsi largely or entirely fuscous; mesonotum not noticeably vittate; fore femur with a blackish mark at apex on anterior side; face concave, entirely yellowish; frons yellow, ocellar region blackish *flavifrons* sp. n.

8. Eye longer than high; cheek as high as width of third antennal segment 9

— Eye at least as high as long, generally higher; cheek linear, or almost so, not over half as high as width of third antennal segment 14

9. Wing unevenly infuscated, the costal margin broadly brown, two spots in first posterior cell, one in middle of discal cell, the veins and apical margin suffused with brown, the latter irregularly so; dorsum of thorax with six, pleura with two black vittae; large species, 6 mm. in length .....*magnifica* Hendel

— Wing almost uniformly infuscated, generally slightly paler along hind margin, never spotted; each humeral angle with two bristles except in *coleoptrata*.....10

10. Face not noticeably carinate in center below bases of antennae; thoracic dorsum and scutellum brownish black, the latter with a conspicuous white central vitta which is not sharply margined; mid and hind femora each with a fuscous stripe which runs obliquely downward from near middle to near apex on anterior side; frons glossy black,

yellowish on each side in front of proclinate bristle, and at each anterior lateral angle.....*planifacies* sp. n.

— Face with a conspicuous sharp ridge or carina on upper half in center; scutellum without a conspicuous white central vitta; femora not marked as above.....11

11. Frons entirely glossy black; mesonotum and abdomen brownish black, the former paler on sides, but not distinctly vittate; inner cross-vein of wing at middle of discal cell; femora of mid and hind legs broadly fuscous at apices, tibiae of same legs fuscous at bases *atrifrons* sp. n.

— Frons largely yellow.....12

12. Anterior third of frons glossy black, remainder dusky yellow, the ocellar region brownish or fuscous; inner cross-vein close to middle of discal cell; mid femora dark brown on apical half or more, most conspicuously so on anterior side, hind femora less distinctly marked, the brown color extending along almost the entire anterodorsal surface.....*schildi* sp. n.

— Anterior third of frons not darker than ocellar region; inner cross-vein very distinctly proximad of middle of discal cell 13

13. Anterior third of frons and a large mark covering ocellar region and extending from vertex to middle, but not covering lateral margins, black; mesonotum with the brown vittae in part fused, giving it the appearance of having a broad central vitta, which is widened posteriorly, and one on each side, which is more or less subdivided by yellow lines; scutellum uniformly fuscous brown; each humeral angle with two bristles.....*uniformis* sp. n.

— Frons inconspicuously marked with pale brown, ocellar region fuscous; mesonotum with six brown vittae, the median pair sometimes fused; scutellum usually with a pale median line; each humeral angle with one bristle *coleoptrata* Scopoli

14. Pleura without an opaque black vitta above; inner cross-vein at one-third from base of discal cell; wing brown, hyaline from base to inner cross-vein, and with a large hyaline spot beyond outer cross-vein; interfrontalia rather densely covered with microscopic erect hairs; apical scutellar bristles not much shorter than basal pair; subcostal cell pointed at apex; fifth vein continued in a straight line beyond outer cross-vein, its apex slightly curved upward; fourth vein curved forward on apical

third of its last section, not gradually approaching third on its entire length.....*Orthostegana acutangula* Hendel

— Pleura with a very conspicuous opaque black vitta on upper portion; inner cross-vein at or very close to middle of discal cell; wing more uniformly brown, posterior margin generally paler, but there are never sharply defined hyaline areas; inter-frontalia bare; fifth vein usually rather abruptly deflected at or very little beyond outer cross-vein.....15

15. Face entirely yellow; frons yellow, ocellar region darker; antennae yellow, apex of third segment black; mid femur with a brown spot beyond middle; knobs of halteres yellow .....*brunnea* sp. n.

— Face not entirely yellow.....16

16. Face and frons yellow, the former with a narrow black cross-band above mouth and sometimes a darkened area below bases of antennae; frons yellow, ocellar region fuscous; antennae yellow, third segment partly or entirely black.....17

— Face and frons brownish fuscous; antennae but little paler than face except basally.....18

17. Third antennal segment almost entirely deep black; cheek over half as high as width of third antennal segment; fore tibia dark brown beyond middle; eye about as long as high.....*affinis* sp. n.

— Third antennal segment blackened at apex; cheek linear, much less than half as high as width of third antennal segment; fore tibia dark brown at base; eye distinctly longer than high.....*conformis* sp. n.

18. Fore tarsi and tibiae yellow; cheeks linear.*flavimana* sp. n.

— Bases of fore tibiae and basal two segments of fore tarsi dark brown; cheek about half as high as width of third antennal segment.....*fuscibasis* sp. n.

From the description I judge that *horae* Williston will run to *tempifera* in this key but there are color differences which cause me to consider that it is probably not that species. An examination of the type will be necessary to determine its identity.

All the species in the key average from 2 to 3.5 mm. in length with the exception of *interrupta* and *acutangula* unless where mention is made of the size, and all conform in the generic characters distinguishing the genus from *Phortica* Schiner.

ENTOMOLOGICAL NEWS

PHILADELPHIA, PA., MARCH, 1924.

Flying Men and Insects.

A recent interesting bulletin (No. 1204, January, 1924) of the United States Department of Agriculture, entitled "Dusting Cotton from Airplanes," by B. R. Coad, E. Johnson and G. L. McNeil, describes a phase of Tennyson's well-known prediction—

> Heard the heavens fill with shouting and there rain'd a ghastly dew.
> From the nations' airy navies grappling in the central blue,

of which the poet probably never dreamed. By coöperation of the Federal Bureau of Entomology and the Air Service of the United States Army, experiments were made at Tallulah, Louisiana, in August, 1922, to determine the possibility of checking the cotton leafworm (*Alabama argillacea* Hüln.) by dusting the threatened plants with insecticides from airplanes.

Many technical difficulties had to be overcome, as set forth at length in the bulletin. Flights were made at varying elevations from 5 to 50 feet above the cotton plants "and it was almost always possible to distribute the poison from 25 feet or lower regardless of air conditions," as for example, "with an 8-mile breeze blowing, which would render absolutely impossible any effort to dust cotton with ordinary ground dusting machines." In some of the tests the airplane operated "at an average rate of ground speed of 88 miles an hour and the 120 pounds [of calcium arsenate] contained in the hopper lasted over a strip 17,424 feet long." The flights were directed from the ground by a system of wig-wag signals with white flags.

Among the advantages claimed for the use of airplanes for this purpose are their independence of ground conditions, such as rain-soaked fields which would prevent the employment of any ground machines, or the presence of stumps and similar obstacles, and an actual economy of cost at least where large areas are concerned.

Many illustrations, some very striking, accompany the bulletin.

The airplane has frequently been suggested for the exploration of relatively inaccessible countries. We look forward to its use by some enterprising entomologist to obtain the gorgeous butterflies which frequent the flowers at the summits of mighty trees in the tropical forests, or rare and swift flying cicadas and dragonflies. The hitherto inviolate habitats of restricted mountain insects will be invaded by the knight of the net and the bottle and the supremacy of the Age of Insects will be threatened by the Flying Man.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE

On the Synonymy of Prodenia eridania Cram. (Lep., Phalaenidae=Noctuidae.

Prodenia eridania Cram. (partim.)

1782, Cram., Pap. Exot., IV, 133, pl. CCCLVIII, f. F, (nec E), *Noctua.*

1825, Hbn., Verz., p. 244, *Calliergis.*

1852, Gn., Sp. Gén., V, Noct., I, 148, *Xylomyges.*

1856, Wlk., Cat. Lep. Het. B. M., IX, 182, *?Xylomyges.*

1893, Sm., Bull. U. S. N. M., XLIV, 169, *Prodenia.*

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 271, as *eridania* ab. 1 = *externa, Xylomyges.*

1917, B. & McD., Check List, p. 67, No. 2573, *Prodenia.*

externa Wlk.

1856, Wlk., Cat. Lep. Het. B. M., IX, 114, *Leucania.*

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 272, *eridania* ab. 1, *Xylomyges.*

nigrofascia Hlst.

1881, Hlst., Bull. B'klyn Ent. Soc., III, 77, *Leucania.*

1881, Tepper & Smith, Bull. B'klyn Ent. Soc., IV, 7, pl. I, f. 9, *nigrafascia* (in err.), *Leucania.*

form norm. linea Fabr.

1794, Fabr., Ent. Syst., III, No. 2, 106, *Noctua.*

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 271, text fig. 73, as *eridania, Xylomyges.*

eridania Cram. (partim.)

1782, Cram., Pap. Exot., IV, 133, pl. CCCLVIII, f. E, (nec F), *Noctua.*

phytolaccae A. & S.

1797, A. & S., Lep. Ins. Ga., II, 193, pl. XCVII, biol., *Phalaena.*

1852, Gn., Sp. Gén., V, Noct., I, 148, = *eridania* Cram. 358E, *eridania* var., *Xylomyges*.

1856, Wlk., Cat. Lep. Het. B. M., IX, 183, *eridania* var. *B.*, *?Xylomyges*.

derupta Morr.

1875, Morr., Proc. Ac. Nat. Sci. Phila., p. 62, *Actinotia*.

The correct nomenclature of this economic species appears confused.

Cramer figured both the normal form and the form with the black fascia from reniform to termen.

Guenée (1852) restricted the name *eridania* to figure F of plate CCCLVIII of Cramer, placing the normal form as *phytolaccae* A. & S. In this, he is followed by Walker (1856).

Hampson (1909) seems to have overlooked these prior fixations, designating the form with the black fascia as *eridania* ab. 1 = *externa* Wlk.

The normal form of the species will apparently have to be called *Prodenia eridania* form *linea* Fabr., while the aberrant form with the black fascia, not restricted to females, must take the specific name, *Prodenia eridania* Cram.

Only that part of the bibliography which may prove of interest is listed. Other synonyms, based on exotic specimens, are not listed herein; (see Smith 1893 and Hampson 1909).—WM. BARNES and F. H. BENJAMIN, Decatur, Illinois.

On the Retention of ii or i in Specific Patronymic Names.

In general the rules formulated by the Ninth International Zoological Congress, and the opinions rendered by the International Commission on Zoological Nomenclature, regarding the retention of *ii* or *i* in specific patronymic names seem to have escaped the attention of Lepidopterists.

The Barnes and McDunnough *Check List*, and most workers, have followed Article 14 of the International Rules, which states; "If the name is a modern patronymic, the genitive is always formed by adding, to the exact and complete name, an *i* if the person is a man, or an *ae* if the person is a woman, even if the name has a Latin form; it is placed in the plural if the dedication involves several persons of the same name."

The result has been that many names originally published with *ii* termination have been changed to *i* termination.

However, Article 19 states; "The original orthography of a name is to be preserved unless an error of transcription, a *lapsus calami*, or a typographical error is evident".

The question of the *ii* versus *i* in specific patronymic names, is exhaustively dealt with in Opinion 8 of the International Commission, (see Pub. 1938, Smithsonian Institution, pp. 11-12, 1910).

As this opinion may be unavailable to many readers, its conclusion is quoted.

"The conclusion must therefore be drawn that under the present Code the original form of the name should be retained, regardless of the question whether it ends in *i* or *ii*, although authors are advised to be very careful about this point in forming new names, and to adopt the *ii* only when the person's name used as a basis for the specific name ends in *i*".—WM. BARNES and F. H. BENJAMIN, Decatur, Illinois.

The Genus Cyptobunus Banks (Phalangida).

In 1905 Banks described (Ent. News, 16:252) a small Phalangid from a cave near Limespur, Montana, which he named *Cyptobunus cavicolus*. Banks based his genus *Cyptobunus* primarily on the absence of lateral teeth on the claws of the tarsi of the third and fourth legs. In 1914 Roewer (Arch. f. Naturg. v. 80, Abt. A. Heft. 12, p. 167) stated that he believed that the type was an immature specimen and that the real position of the genus must await the examination of mature specimens.

Some years ago the Cornell University collection received from Prof. R. A. Cooley two specimens of the species from the same cave, collected in 1910. They are apparently mature and about 2 mm. in length. The claw of the tarsi of the third and fourth legs bear on each side a small but distinct tooth. Since in other respects this species agrees generically with *Sclerobunus robustus* Packard, the type of the genus, it must be placed there. *Cyptobunus* therefore becomes a synonym of *Sclerobunus*.—C. R. CROSBY and S. C. BISHOP, Cornell University, Ithaca, New York.

Muscina pascuorum Meigen in Maryland (Dipt.: Muscidae).

This common European fly, first captured in America in 1922 in Massachusetts, Connecticut, New York and New Jersey (C. W. Johnson, Psyche, XXX, 1, 1923) is taken this, the following year at Plummers Island, Maryland; one female, in house, November 11, 1923. R. C. SHANNON, U. S. National Museum, Washington, D. C.

Entomological Literature

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

Papers of systematic nature will be found in the paragraph at the end of their respective orders. Those containing descriptions of new genera and species occurring north of Mexico are preceded by an *.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

The titles occurring in the Entomological News are not listed.

6—Journal of the New York Entomological Society. **7**—Annals of The Entomological Society of America, Columbus, Ohio. **9**—The Entomologist, London. **10**—Proceedings of the Entomological Society of Washington, D. C. **15**—Insecutor Inscitiae Menstruus, Washington, D. C. **20**—Bulletin de la Societe Entomologique de France, Paris. **21**—The Entomologist's Record, London. **42**—Entomologiske Meddelelser udgivne af Entomologisk Forening, Kjobenhavn. **49**—Entomologische Mitteilungen Berlin-Dahlem. **50**—Proceedings of the United States National Museum. **57**—Biologisches Zentralblatt, Leipzig. **59**—Journal of Agricultural Research, Washington, D. C. **64**—Parasitology, London. **68**—Science, Garrison on the Hudson, N. Y. **72**—The Annals of Applied Biology, London. **76**—Nature, London. **77**—Comptes Rendus des Seances de la Societe de Biologie, Paris. **78**—Bulletin Biologique de la France et de la Belgique, Paris. **79**—Bulletin of the Museum of Comparative Zoology at Harvard College, Cambridge, Mass. **85**—The Journal of Experimental Zoology, Philadelphia. **87**—Arkiv for Zoologi, K. Svenska Vetenskapsakademien, Stockholm. **90**—The American Naturalist, Lancaster, Pa. **99**—Bulletin du Museum National d'Histoire Naturelle, Paris. **100**—Biological Bulletin of the Marine Biological Laboratory, Woods Hole, Mass. **101**—Journal of The Linneau Society of London. **116**—Entomologische Zeitschrift, Frankfurt, a. M. **119**—Proceedings of the National Academy of Sciences of the U. S. A., Washington, D. C. **133**—Zoologica. Scientific Contributions of the New York Zoological Society. **141**—Internationale Entomologische Zeitschrift, Guben, Germany. **154**—Annales de la Societe Linneenne de Lyon.

GENERAL. Baker, C. F.—Comparison of neotropical and palaeotropical insect faunae (Phil. Jour. Sci., xxiii, 531-2.) **Clements and Long**—Experimental pollination. An outline of the ecology of flowers and insects. (Carnegie Inst. Wash., Pub., No. 336.) **Fabre, J. H.**—Biographical note. (La Nature, 1923, 353-4.) **Horn, W.**—Et meminisse et vaticinari liceat. 15. Ueber Kropotkin und Darwin. **49,** xii, 215-6. **Howard, L. O.**—Retarded establishment of introduced parasites of injurious insects. **119,** x, 16-18. **Hungerford, H. B.**—Historical account of department of entomology [Kansas Unive.]. (Kans. Univ. Sc. Bul., xiv, 7-15.) **Lawson, P. B.**—Report upon the celebration of May 16, 1921, in honor of the twenty-fifth anniversary of S. J. Hunter's connection with the department. (Kans. Univ. Sc. Bul., xiv, 21-3.) **Moore & Hungerford.**—Water insects from a portion of the southern Utah desert. (Kans. Univ. Sc. Bul., xiv, 409-21.) **Pavlovsky, E. N.**—Description of a box for collecting and transporting living insects, etc. **64,** xiv, 47-50. **Pratt, J. G.**—Preparing insects for the camera. (Nature Mag., 1924, 95-98.) **Swinehoe, C.**—Obituary. **9,** lvii, 23-4. **Wulker, G.**—Parasitische wurmer bei insekten. **141,** xvii, 138-43 (cont.)

ANATOMY, PHYSIOLOGY, MEDICAL, ETC. Brambell, F. W. R.—Sex-reversal and intersexuality. (Jour. R. Microsc. Soc., 1923, 395-408.) **Burrows, M. T.**—A study of the relation between function and growth in body cells (Kans. Univ. Sc. Bul., xiv, 475-504.) **Clausen, R. E.**—The inheritance of cinnabar eye color in Drosophila melanogaster, including data on the locus of jaunty. **85,** xxxviii, 423-36. **Crampton, G. C.**—A comparison of the labium in certain holometabolous insects from the standpoint of phylogeny. **10,** xxv, 171-80. **Glenn, P. A.**—A problem in the relation of temperature to rate of insect development. (Kans. Univ. Sc. Bul., xiv, 317-23.). **Hering, M.**—Das histologische bild der von insektenlarven erzeugten blattminen. (Mikrokosmos, xvii, 49-53.) **Kopec, S.**—Studies on the influence of inanition on the development and the duration of life in insects. On the heterogeneous influence of starvation of male and of female insects on their offspring. **100,** xlvi, 1-21; 22-34. **McFarland, J.**—Fighting foes too small to see. (Philadelphia, F. A. Davis Co., 1924, 309 pp.) **Turner, C. H.**—A new field method of investigating the hydrotropisms of fresh-water invertebrates. **100,** xlvi, 35-54.

ARACHNIDA AND MYRIOPODA. Chamberlin, R. V.—The northern range of the scorpion. **68,** lix, 64. **Han-**

strom, B.—Ueber die histologie und vergleichende anatomie der sehganglien und globuli der araneen. (Kongl. Svenska Vet.-Akad. Handl., lxi, No. 12.) **Mallock, A.**—The eyes of spiders. **76,** cxiii, 45-8. **Sokolska, J.**—L'appareil de Golgi dans les cellules somatiques et sexuelles (spermatogenese et ovogenese) de l'araignee domestique (Tegenaria domestica). **77,** lxxxix, 1395-6. **Archey, G.**—A new genus of Chilopoda from Br. Guiana, and a n. sp. of Wailamyctes from Auckland Island. (Rec. Canterb. Mus., ii, 113-16.) ***Ewing, H. E.**—Holosiro acaroides, new genus and species, the only New World representative of the mite-like phalangids of the suborder Cyphophthalmi. **7,** xvi, 387-90.

THE SMALLER ORDERS OF INSECTA. John, O.—Fakultative viviparitat bei Thysanopteren. **49,** xii, 227-32. **Meissner, O.**—Wespen und libellen, **116,** xxxvii, 35-6.

***Banks, N.**—Descriptions of new neuropteroid insects. **79,** lxv, 421-55. **Ferris, G. F.**—The mallophagan family Trimenoponidae. **64,** xiv, 75-86. ***Ferris, G. F.**—Contributions towards a monograph of the sucking lice. (Stanford Univ. Pub., Biol. Sci., ii, No. 4). **Lacroix, J. L.**—Etudes sur les Chrysopides. II. Memoire. **154,** 1922, 119-44. **Snyder, T. E.**—A new Prorhinotermes from Panama. (Jour. Wash. Ac. Sci., xiv, 43-5.)

HEMIPTERA. Buchner, P.—Ueber ein neues, symbiontisches organ der bettwanze. **57,** xli, 570-4. **DeLong, D. M.**—The distribution of the leafhoppers of Presque Isle, Pa., and their relation to plant formations. **7,** xvi, 363-73. **Doering, K.**—Biology and morphology of Lepyronia quadrangularis. (Cercopidae). (Kans. Univ. Sc. Bul., xiv, 515-87.) **Hackman, L. M.**—Studies on Cicadella hieroglyphica. (Kans. Univ. Sc. Bul., xiv, 189-209.) **Hungerford, H. B.**—The life history of the toad bug. (Kans. Univ. Sc. Bul., xiv, 145-71.) **Leonard & Barber.**—The immature stages of the catnip leafhopper (Eupteryx melissae). **6,** xxxi, 181-4. **Readio, P. A.**—The ovipositors of the Cicadellidae. (Kans. Univ. Sc. Bul., xiv, 217-98.) **Wadley, F. M.**—Factors affecting the proportion of alate and apterous forms of aphids. **7,** xvi, 279-303. **Wiley, G. O.**—Life history notes on two species of Saldidae found in Kansas. Some notes on the biology of Curicta from Texas. (Kans. Univ. Sc. Bul., xiv, 301-11; 507-11.)

Baker, A. C.—An undescribed orange pest from Honduras. **59,** xxv, 253-4. **Bondar, G.**—Aleyrodideos do Brasil. (Secret. Agric., Indust. . . . Bahia, 1923, 182 pp.)

***Hungerford, H. B.**—The Nepidae of North America. (Kans. Univ. Sc. Bul., xiv, 425-69.) ***Lawson, P. B.**—The genus Acinopterus (Cicadellidae). (Kans. Univ. Sc. Bul., xiv, 113-39.) **Lawson, P. B.**—The Membracidae of Kansas. (Kans. Univ. Sc. Bul., xiv, 31-110. ***Mason, P. W.**—The raspberry cane aphid. **10,** xxv, 188-90. ***Osborn & Lathrop.** The genus Phlepsius in North America. (Homoptera). **7,** xvi, 310-63. **Porter, C.**—Insecto nuevo de la fam. Berytidae. (Rev. Chilena Hist. Nat. xxvii, 20-21.) **Woodruff, L. B.**—Supplementary notes on Ophiderma. (Homoptera). **6,** xxi, 188-90.

LEPIDOPTERA. Baylis, H. A.—Colour production in L. **9,** lvii, 2-6. **Coolidge, K. R.**—The life history of Thanaos funeralis. (Hesperiidae). **6,** xxxi, 175-81. **Robertson-Miller, E.**—Observations on the bellura. (Bellura gortynoides). **7,** xvi, 374-86. **Turner, H. J.**—Lycaenid larvae and ants. "Hermaphroditism" in the Hesperiidae. **21,** xxxvi, 8-9. **Vansell, G. H.**—The urinary system of Phlegethontius sexta. (Kans. Univ. Sc. Bul., xiv, 365-9.)

Beebe, W.—Notes on Galapagos L. **133,** v, 50-9. **Bouvier, E. L.**—Observations sur quelques Saturniens recueillis au Venezuela. Quelques Saturniens nouveaux de l'Amerique tropicale. **99,** 1923, 5 353-9; 422-7. **Dyar, H. G.**—New L. from Mexico and one from Argentina. **15,** xii, 15-21. ***Dyar, H. G.**—A new noctuid from Louisiana. **15,** xii, 21-2. **Le Cerf, F.**—Descriptions de formes nouvelles de lepidopteres rhopaloceres. **99,** 1923, 360-7, 428-9. **Niepelt, W.**—Neue formen palaearktischer und exotischer lepidopteren. **141,** xvii, 134. **Niepelt, W.**—Neue u. wenig bekannte exotische Rhopaloceren. **141,** xvii, 138. **Schaus, W.**—Galapagos heterocera with descriptions of new sps. **133,** v, 23-48.

DIPTERA.—Bezzi, M.—On the dipterous genera Passeromyia and Ornithomusca, with notes and bibliography on the non-pupiparous Myiodaria parasitic on birds. **64,** xiv, 29-46. **Freeborn, S. B.**—The "proepimera" of the Culicidae. **15,** xii, 37-8. **Frew, J. G. H.**—On the larval and pupal stages of Forcipomyia piceus. **72,** x, 409-41. **Frew, J. G. H.**—On the morphology of the head capsule and mouth parts of Chlorops taeniopus. **101,** xxxv, 399-410. **Genna, M.**—Ricerche sulla nutrizione dell'Anopheles claviger. (Arch. Zool. Ital., x, 15-33.) **Morris, H. M.**—On the larva and pupa of a parasitic phorid fly, Hypocera incrassata. **64,** xiv, 70-4. **Seguy, E.**—Note sur les larves des Muscina stabulans et assimilis. **99,** 1923, 443-5. **Shannon, R. C.**—Some special features of

the wings of D. **15,** xii, 34-6. **Turner, C. L.**—The Psychodidae (moth-like flies) as subjects for studies in breeding and heridity. **90,** lvii, 545-58.

Aldrich, J. M.—The genus Philornis—a bird-infesting group of Anthomyiidae. **7,** xvi, 304-9. ***Claasen, P. W.**—The larva of a chironomid (Trissocladius equitans n. sp.) which is parasitic upon a may-fly nymph (Rithrogena sp.) (Kans. Univ. Sc. Bul., xiv, 395-405.) **Dyar, H. G.**—Note on Aedes punctor. The mosquitoes of Colorado. **15,** xii, 24-6, 39-46. **Dyar & Shannon.**—New Culex from Panama. **15,** xii, 46-8. ***Garrett, C. B. D.**—Some new American Helomyzidae. **15,** xii, 26-34. **Matheson, R.**—Notes on Culicidae (Aedes). **15,** xii, 22-4. **Shannon, R. C.**—Notes on Calliphoridae. **15,** xii, 14. ***Van Duzee, M. C.**—Notes and descriptions of two-winged flies of the family Dolichopodidae from Alaska. **50,** lxiii, Art. 21. ***Wehr, E. E.**—Synopsis of the Tabanidae of Nebraska, with description of a new species from Colorado. A synopsis of the Syrphidae of Nebraska with descriptions of n. sps. from Nebraska and Colorado (Univ. Neb., Univ. Stud., xxii, 107-18; 119-62.)

COLEOPTERA. Bertin, L.—L'adaption des pieces buccales aux regimes alimentaires chez les coleopteres lamellicornes. **154,** 1922, 145-59. **Beyer, A. H.**—A brief resume of investigation made in 1913 on Trogoderma inclusa. (Dermestidae). (Kans. Univ. Sc. Bul., xiv, 373-91). **Falcoz, L.**—Etudes sur les Cryptophaginae. **154,** 1922, 165-83. **Gadeau de Kerville, H.**—Description et figuration d'anomalies coleopterologiques. **20,** 1923, 229-33. **Kuntze, R.**—Analyse genetique de la varibilite de la coloration chez les coleopteres Melasoma aenea. **77,** lxxxix, 1392-4. **Wilson, C. B.**—Water beetles in relation to pondfish culture, with life histories of those found in fishponds at Fairport, Iowa. (Bul. Bur. Fish. Wash., xxix, 231-345.)

Barber, H. S.—Two new Conotrachelus from tropical fruits. (Curculionidae). **10,** xxv, 182-5. **Benderitter, E.**—Quelques Rutilides nouveaux. **20,** 1923, 216-9. **Dawson, R. W.**—A synopsis of the Scarabaeidae of Nebraska. (Univ. Neb. Stud., xxii, 163-244.) **Desbordes, H.**—Description de reninus nouveaux de la Republique Argentine et tableaux de determination des especes de ce genre. **99,** 1923, 368-71. **Fisher, W. S.**—A change of name in Buprestidae. **10,** xxv, 190. **Horn, W.**—Einiges ueber neue und alte Cicindeliden. **42,** xiv, 211-16. ***Leng, C. W.**—New species and synopsis of Statira. **6,** xxxi, 184-8. **Portevin, G.**—Description d'une

nouvelle espece de Silphide des collections du museum. **99,** 1923, 380-1.

HYMENOPTERA. Isely, D.—Notes on nesting of Polistes. (Kans. Univ. Sc. Bul., xiv, 341-3.) **Meissner, O.**—Wespen und libellen. **116,** xxxvii, 35-6. **Nielsen, E.**—Contributions to the life history of the pimpline spider parasites (Polysphincta, Zaglyptus, Tromatobia). **42,** xiv, 137-205. **Olsen, C. E.**—Backyard collecting in Ramsey, N. J. **6,** xxxi, 171-5. **Picard, F.**—Recherches biologiques et anatomiques sur Melittobia agasta. **78,** lvii, 469-508. **Roth, P.**—A propos de instinct de Bembex rostrata. **154,** 1922, 47-52. **Sandhouse, G. A.**—A gyandromorphic bee of the genus Osmia. **90,** lvii, 569-70. **Stumper, R.**—L'illusion des amputes chez les fourmis. (La Nature, Paris 1923, 335-6. **Viereck, H. L.**—The flower relations of wild bees. (Can. Field-Nat., xxxvii, 164-5.)

Friese, H.—Wissenschaftliche ergebnisse der schwedischen entomologischen reise des A. Roman in Amazonas—Apidae. **87,** xv, No. 13. **Gahan, A. B.**—Types of two chalcid-flies misidentified. **10,** xxv, 185-8. ***MacGillivray, A. D.**—Sawflies of the Katmai expedition to Alaska. **6,** xxxi, 163-71. **Mann, W. M.**—Two serphoid guests of Eciton. **10,** xxv, 181-2. ***Phillips and Poos**—Five n. sps. belonging to the genus Harmolita (Isosoma auct.) (Kans. Univ. Sc. Bul., xiv, 349-59.) **Wheeler, W. M.**—Wissenschaftliche ergebnisse der schwedischen entomologischen reise des A. Roman in Amazonas—Formicidae. **87,** xv, No. 7.

SPECIAL NOTICES

Hemiptera: Science bulletin of the University of Kansas, Vol. XIV, has just come to hand. It contains 587 pages, including many plates, all with the exception of a small paper on Crustacea, treating of subjects of entomological interest. The largest papers are reviews or monographs of several families and genera of the Hemiptera, while others are of more biological and anatomical nature, mainly of several species of Hemiptera. This volume is dedicated to Samuel John Hunter, Head of Department of Entomology. **Macrolepidoptera of the World.**—Parts 306-308, Fauna americana parts 128-130 have been issued in the English edition. These continue the Hesperiidae by Dr. M. Draudt.

The **Catalogue of Indian Insects,** Part 1 of which on the Acrydidae (Tettigidae) was reviewed in the NEWS for March,

1922, page 95, has been advanced by the publication of Part 2. Culicidae and Part 3. Bombyliidae, both by Ronald Senior-White (Calcutta, Sup't Govt. Printing, India, 1923). The Indian Culicid fauna "is now represented by 28 genera containing a total of 160 valid species and varieties," the Bombyliid by 17 genera and 103 species. In both parts the localities, both within and outside of India, cited in each reference are given as marginal notes.

The progress of Indian Entomology is recorded in a **List of Publications on Indian Entomology, 1920-21,** compiled by the Imperial Entomologist (Bull. 139, Agri. Research Inst., Pusa; Calcutta, Supt. Govt. Printing, India, 1922; 67 pp.) The publications are listed under their authors' names, the names arranged alphabetically. The title and place of publication of each article are followed by a list of the Indian and near-Indian species concerned. No means of finding the papers on any given group of insects is furnished, however.

The recent death of the Hon. N. C. Rothschild (see the NEWS for February, page 76) lends a melancholy interest to Part 5 of Volume I of **Ectoparasites,** published Nov. 10, 1923, which he edited in conjunction with Dr. K. Jordan. It comprises pages 287-370, text figures 281-383 and contains five articles by the two editors on Swiss, Algerian, Eastern Hemisphere and American (North and South) Siphonaptera and a revision of the fleas of the chiefly neotropical genera Rhopalopsyllus and Parapsyllus, with keys to the American species of both.

Under the title **Some Remarks about the supposed scent-organs of the Genus Opsiphanes,** Heer J. H. Juriaanse describes and figures (Tijdschr. v. Ent. LXVI, pp. 147-151, pl. 2, 1923) structures which he sums up as follows:

"The sexual attraction mechanism of this male [Brassolid] butterfly consists of three leading functions, viz. 1. The secretion of scent by a gland at each side of the abdomen. 2. The ejection of same over a special contact-organ consisting of bud-shaped projections implanted in those glands. 3. The distribution of the scent in the air derived from those projections by the contact of a hair pencil on the wing."

EXTERNAL INSECT-ANATOMY by ALEXANDER D. MACGILLIVRAY, Urbana, Illinois. The Scarab Co., 1923.*

In *External Insect-Anatomy* the author has departed from the usual method of writers on entomology by an attempt to bring

[*The review of this work published in the NEWS for January suggested submitting the volume for comment to Mr. Turner, a senior in

the material of the text-book into closer relation with the work in the laboratory. Such an innovation is particularly desirable in connection with a subject such as comparative morphology in which there is such a close inter-relationship between the laboratory work and the background usually afforded by the text-book, so that the author would be justified in asserting that the method in which his material is presented as well as the material itself supplies a real need.

The bulk of *External Insect-Anatomy* consists of outlines for the study of a wide variety of insects representing the fruits of a tremendous amount of work on the part of the author and those who have collaborated with him. These laboratory outlines are grouped in appropriate sub-topics under the general headings of Fixed Parts of the Head, Movable Parts of the Head, Thorax, Abdomen, Legs and Wings. No attempt has been made, as is sometimes the case, to make structures which are really very complicated appear simple by disregarding the minor points of anatomy; the student who has mastered well-chosen portions of *External Insect-Anatomy* will have an unusually firm basis on which to proceed with further studies in systematic entomology and taxonomy.

What may be termed the text-book portion of *External Insect-Anatomy* consists of generalized discussions in considerable detail introducing each topic and sub-topic. These are intended primarily for use in connection with the laboratory outlines which follow, and for this reason the illustrations are few in number and, with several exceptions, all of a hypothetical character. As a consequence the beginner in entomology would find the book of little profit to him except when used in conjunction with laboratory work; when so used, however, it would be entirely suitable for the beginner, as no previous knowledge of insects is assumed.

In the matter of illustrations the chapter on wings presents a contrast to the remainder of the volume; here the author has found it advisable to accompany the reference to each species with a drawing of a wing. The excellent discussion at the beginning of this chapter on the origin and development of wings is also well illustrated.

The student who is already familiar in a general way with the anatomy of one insect, say the grasshopper or cricket, will re-

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the College Department of the University of Pennsylvania. Mr. Turner began his first course in Entomology in October, 1923, having previously completed courses in general zoology and in invertebrate zoology (exclusive of insects). He tells me that he had not read any notices of Dr. MacGillivray's book up to the time that his manuscript was placed in my hands. I have carefully avoided trying to influence Mr. Turner's opinions on the book.—EDITOR.]

gard the absence of illustrations as a real advantage, since it has permitted of a degree of completeness not usually found in a book of such handy size. The unusual care taken in the matter of arrangement and the inclusion of extra material which helps in the full understanding of the subject-matter proper makes the acquisition of this abundance of information a much easier matter for the student than it might otherwise be.

The comprehensive introduction contains all the preliminary material that is needed by the beginner, including a discussion of technical nomenclature, a subject with which familiarity is too often assumed. As occasion requires series of clear definitions are given of the terms about to be employed. Other commendable features are the pronouncing index and the list at the end of the volume giving the systematic position of the species described as well as the English equivalents of their names. Such a list in several of the entomology text-books of a general character would be still more useful than in a book on comparative morphology. The student who knows how difficult it is to secure satisfactory information on laboratory methods will appreciate the comprehensive instructions in technique which are given as the need arises.

But more important than these incidental features in establishing the worthwhileness of *External Insect-Anatomy* as a text-book are the very obvious pains which the author has taken to make plain at every step the significance of the comparative study of insects, particularly in its relation to the matter of evolution. The inclusion of material drawn from embryology has been an effective part of this policy. As a consequence *External Insect-Anatomy* might be used with profit even in a course where the stress is laid more upon the characteristics of the several orders and less upon the comparative structure of the parts of insects, as it would shed light upon the laboratory work from a slightly different angle. During the term reference might be made to sections in different chapters dealing with the order being studied in the laboratory, and towards the end of the term a reading of the general treatments at the beginning of each chapter would make clearer the relations to one another of the orders studied and broaden the student's knowledge of insects in general.

A feature of *External Insect-Anatomy* which in no way affects the value or usefulness of its contents but which is still of considerable importance is the freedom the author has allowed himself in the formation of new compounds. Many who are mindful of the responsibility of biologists in contributing new words to the language will look askance at hybrids such as

"mesowings" and "metalegs," and object strenuously to the disregard of roots shown in the numerous compounds introduced of the type of "quaspiracles" and "quispiracles," where qua- and qui- stand for quattuor and quinque. Others who hold language in less esteem will probably argue along with the author that accuracy and conciseness are the prime essentials in a book like *External Insect-Anatomy*, and that all means to secure them are legitimate.—PAUL A. TURNER.

OBITUARY.

EDWIN A. BISCHOFF.

Edwin A. Bischoff, a coleopterist of repute, died on December 23rd last, at the hospital in Newark, New Jersey, following an operation. Mr. Bischoff was born January 23, 1866 and became known beyond his own locality as an energetic collector of Coleoptera with the publication in 1890 of Smith's first list of the Insects of New Jersey. His records in the third list, published in 1909, covered a large part of the coleopterous fauna of New Jersey and he was thereafter recognized as the possessor of one of the largest collections in the state and of a fund of information acquired by his constant field work. Many specialists obtained part of their data from him and as one result *Thysanocnemis bischoffi* was named for him by Blatchley.

His own writings are not numerous but include "Neoclytus jouteli in Virginia" (Journ. N. Y. Ent. Soc. XXVII, 1918, p. 231).

Mr. Bischoff was a member of the Newark Entomological Society, and of the New York Entomological Society, also of several fraternal associations. His home was at 151 Maple Avenue, Irvington, where many entomologists have visited and seen his collections, remarkable for their neat arrangement as well as for the great series of specimens included. His collecting trips were made chiefly in the Newark district and the Orange Mts., but Eagle Rock, Berkeley Heights, and Lakehurst were also among his favorite haunts. His companion on many of these trips was Mr. Edgar L. Dickerson, whose death was recorded in the January number of the NEWS.

CHARLES W. LENG.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Wanted—Am working on a Revision of the Buprestidae of the West Indies and would like to examine any material in this family from that region. W. S. Fisher, U. S. National Museum, Washington, D. C.

Coleoptera for exchange—Cicin. generosa, hirticollis, modesta, sexguttata, 12-punctata, Saperda populnea, Uro. fasciata, Donacia subtilis, palmata, texana-minor, biimpressa, refuscens. Ernest Baylis, 5011 Saul St., Philadelphia, Pa.

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